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FROM: James V. Costigan

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DATE: April 17, 2006 CHARGE: 181-030B

RE: Serial No.10/674,116

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James V. Costigan, Reg. No. 25,669

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APR 17 2006

Docket No.: **181-030B**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
PATENT OPERATIONS

In re Application of:

Peter Dronzek

Group Art Unit: 1733

Serial No.: 10/674,116

Examiner: Schatz, Christopher

Filed: September 29, 2003

For: **TECHNIQUES FOR LABELING OF PLASTIC, GLASS OR METAL CONTAINERS OR SURFACES WITH POLYMERIC LABELS**

New York, NY 10036
April 17, 2006

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

LETTER

SIR:

It has been noted that the Declaration Under 37 CFR§1.132 that was referenced in the Amendment filed April 13, 2006 was not included with that Amendment. For this reason, a copy is attached to this Letter.

Respectfully submitted,

James V. Costigan
Reg. No. 25,669

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Docket No.: **181-030A**

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

PATENT OPERATION

In re Application of:
Peter Dronzek
Serial No.: 10/292,231
Filed: November 12, 2002

Group Art Unit: 1772
Examiner: Augenbaugh, W.

For: **TECHNIQUES FOR LABELING PLASTIC, GLASS OR METAL CONTAINERS OR SURFACES WITH POLYMERIC LABELS**

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

DECLARATION UNDER 37 CFR 1.132

I, Leslie Fernandez, declare that I have an associates degree in chemistry and have about 25 years of industrial experience as a chemist. I was asked to carry out tests to compare the results of coating open celled polymer material and closed cell polymer material in connection with the above identified patent application.

The specific purpose of this experiment was to evaluate open and closed cell polyolefin based films to determine if there are differences in the end functional properties when used with typical aqueous adhesives used for post mold labeling of polymeric or glass containers.

Adhesives used for this project were:

Henkel 10-7026 - Sample is 46.8% solids Viscosity ~100,000 cps

Henkel 10-7302 - Sample is 61.7% solids Viscosity ~250,000 cps

The adhesives were dyed with Phthalo Blue R (AQ_6003) from Cardinal Color Corp, Paterson, NJ to aid in making adhesive observations in testing.

Films used were:

A nominal 3.4 mil cavitated co-extruded white oriented polypropylene film (Exxon Mobil Chemical, Macedon NY 85LP) which has an open network of cavities or cells throughout the core and an adhesive side co-extruded layer with a nominal density of 0.55. The co-extruded print-side layer is solid resin.

A nominal 3 and 4 mil thickness polyethylene blend (Performance Packaging, Charlotte NC, Unicel) which is manufactured by the blown film process to provide a monolayer with a uniform distribution of closed cells with solid resin between the cells and a nominal density of 0.55.

The following methods were used to illustrate the difference between closed and opened cellular films.

- Coat Weight Difference - To determine coat weight effects I coated using the two types of adhesives (A:10-7026 & B:10-7302) onto both the open and closed cell films using a # 24 draw down rod. The film was allowed to dry at room temperature to allow for wicking into the cavities of the cells to take place. The draw downs were allowed to dry for 10 days at room temperature before they were cut into sample sizes. A die was used to cut the samples to assure that all pieces are cut to the same size of 2" x 5".

Samples were weighed after they were dried and cut to size and then after the adhesive was washed off. By weight difference, the coat weight gain was calculated per 10 square inch area and the % dry weight gain was determined. Based on the solids of the adhesive, the wet coat weight gain was calculated as was the % wet weight gain to illustrate any potential differences in the two film substrates since the same laboratory rod and adhesive were used.

	Coated Weight	Washed Weight	Dry Coat Weight Gain/%	Wet Coat Weight Gain/%
open A	10.4449	0.3081	0.1368/44.4	0.2923/94.9
closed A	0.6283	0.5056	0.1227/24.3	0.2622/51.8
open B	0.5049	0.3056	0.1993/65.2	0.3230/105.7
closed B	0.5486	0.3855	0.1631/42.3	0.2643/68.6

It is noted that the higher solids adhesive deposited a significantly greater coat weight on both film substrates as expected.

Conclusion: Using the two different adhesives, I have demonstrated that more adhesive migrates into the open cell film versus the closed cell film. The A (10-7026) adhesive on the open cell film holds 43.1% more wet adhesive than on the closed cell film. The B (10-7302) adhesive on the open cell film holds 37.1% more wet adhesive then on the closed cell film.

The higher viscosity and higher solids B(10-7302) adhesive shows a heavier coat weight as expected and a smaller differential weight gain (37%) between the closed and open cell materials because the higher viscosity of the B (10-7302) does not penetrate the cellular voids as readily as the A (10-7026) (43%).

- Adhesion and Impregnability of the adhesive

This method is used to demonstrate the adhesion properties and adhesive action of the adhesive by placing cut out labels onto glass and HDPE jars. The labels were coated as above with the number 24-rod and were applied wet to the containers. The labeled container was allowed to dry for a 10-day period that is a typical time period for the packaging industry. After 10 days, the labeled containers were analyzed. For adhesive strength (peel strength) and adhesive action. Adhesive action is defined as cohesive failure of the adhesive where adhesive stays on the label and container, transfer to the label or transfer to the container.

The numbers in parenthesis indicate the number of tests done for reproducibility. Following are the results of this test:

The following test sets on open cell film shows that the cellular label splits leaving a thin layer of cellular film impregnated with adhesive that has transferred in the majority of the label area to the container.

A adhesive on open cell film on HDPE	Film split (4)
A adhesive on open cell film on Glass	Film split (4)
A adhesive on open cell film on HDPE	Film split (4)
A adhesive on open cell film on Glass	Film split (4)

The adhesive appeared completely dry.

The following tests on closed cell film show most of the adhesive transferring from the film to the container:

B adhesive on closed cell film on HDPE	Adhesive split (4)
B adhesive on closed cell film on Glass	Adhesive split (4)
B adhesive on closed cell film on HDPE	Adhesive split (4)
B adhesive on closed cell film on Glass	Adhesive split (2)

In all cases, the majority of the adhesive transferred from the film substrate to the container showing poor adhesion to the film. When the labels were removed, the adhesive was still slightly wet.

The above data shows that open cell film dries throughout the label more rapidly than the closed cell film due to the increased surface area, impregnation and porosity of the open cell film.

The final bond of either adhesive on closed cell film to either Glass or HDPE shows a high degree of peel strength but no film destruction. It also shows a preferential adhesion to the container surface rather then the film surface since the film surface is continuous and does not allow penetration of the adhesive into the body of the film.

For the open cell film, it dries more quickly vs. closed cell film and penetrates into the open cells providing better adhesion between the adhesive and the film resulting in fracture of the film when you try to peel it off.

The closed cell film with a uniform resin layer between the cells is tough and durable and difficult to penetrate, bond to and fracture. The open cellular structure can be penetrated and provides a higher surface area for bonding. Since the cells are open and joined with voids in the resin layer between the cells linking them, not only can the structure bind more adhesive and provide a larger surface area for bonding, but it is inherently weak because of the linked cells and readily fractures.

- 24 hour Ice Soak Test

This test was used since it is typically used in the beverage industry, which is a large market for this type of labeling technique. This test involved placing labels on glass jars and allowing them to dry for 10 days. The jars are submerged under ice water for a period of 24 hours. After that time they are taken out and the labels were peeled and rated for bond strength. The rating system used to rate this peel test was (easy - medium - tight).

Following is this data:

A adhesive on open cell film on Glass	Tight (2)
A adhesive on closed cell film on Glass	Medium (2)
A adhesive on open cell film on Glass	Tight (2)
A adhesive on closed cell film on Glass	Medium (2)

None of the labels came off in the test bath.

The tighter bond of the open cell film is achieved because the adhesive penetrates the open cell structure for improved bonding because of the increased surface area in contact with the adhesive.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to by true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application and of any patent issued thereon.

Dated: November 23, 2005

Leslie Fernandez
Leslie Fernandez